

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference VTE-137-BPCT	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 03/19545	International filing date (day/month/year) 20/06/2003	(Earliest) Priority Date (day/month/year) 21/06/2002
Applicant VIKING TECHNOLOGIES, L.C.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1a
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 03/19545

Box III TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

An apparatus according to the present invention includes a support structure (12) having a primary portion (14) with first and second arm portions (24, 26) formed thereon for movement relative to one another, and a secondary portion (28, 32) with either a clamp portion (30, 34) or valve portion integrally formed on an outer end of each arm portion for movement therewith. A primary actuator (16) is operably associated with the primary support structure for driving the arm portions relative to one another in response to an electrical activation of the primary actuator. Secondary actuators (46, 52) are operably associated with the secondary portions for independently driving the secondary portions between an opened position and a closed position in response to an electrical activation of each secondary actuator. Each of the actuators is operable independently of one another. The apparatus is operable to provide a bi-directional motor, a bi-directional pump, or a bi-directional compressor depending on the selected configuration and sequential mode of triggering the primary and secondary actuators.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/19545

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01L41/09 F04B17/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01L F04B H02N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 465 021 A (KOSTER MARINUS PIETER ET AL) 7 November 1995 (1995-11-07)	1-3, 5, 7, 11, 12, 14, 15, 17-19, 21
Y	column 7, line 36 -column 10, line 48 figure 4	20
X	US 4 736 131 A (FUJIMOTO TOSHITAKA) 5 April 1988 (1988-04-05) cited in the application column 2, line 39 -column 4, line 26; figure 3	1, 2, 5, 7, 11, 12, 14, 16, 17

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

16 March 2004

Date of mailing of the international search report

23/03/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Meul, H

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 03/19545

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	PATENT ABSTRACTS OF JAPAN vol. 011, no. 165 (E-510), 27 May 1987 (1987-05-27) -& JP 61 296781 A (NEC CORP), 27 December 1986 (1986-12-27) abstract; figures 1,2 ----	1-8
Y	EP 0 325 764 A (TOYOTA MOTOR CO LTD) 2 August 1989 (1989-08-02) column 2, line 32 -column 4, line 7 column 12, line 22-40 figures 2,10,11 ----	1-5,20
Y	US 2001/030306 A1 (ALEXY MICHAEL ET AL) 18 October 2001 (2001-10-18) paragraphs '0036!, '0050!, '0072!-'0075!; figures 11,17 -----	6-8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/19545

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5465021	A	07-11-1995	DE 69318662 D1	25-06-1998
			DE 69318662 T2	26-11-1998
			EP 0592030 A1	13-04-1994
			JP 3434327 B2	04-08-2003
			JP 6217562 A	05-08-1994
US 4736131	A	05-04-1988	JP 62026189 U	17-02-1987
			JP 62104593 U	03-07-1987
JP 61296781	A	27-12-1986	NONE	
EP 0325764	A	02-08-1989	JP 1100970 U	06-07-1989
			JP 1100971 U	06-07-1989
			JP 1169184 A	04-07-1989
			EP 0325764 A2	02-08-1989
			US 4929859 A	29-05-1990
US 2001030306	A1	18-10-2001	AU 4961201 A	30-10-2001
			DE 10196102 T0	30-04-2003
			WO 0179731 A1	25-10-2001
			US 2003127948 A1	10-07-2003
			AU 4958601 A	30-10-2001
			WO 0180326 A1	25-10-2001
			US 2002014813 A1	07-02-2002
			US 2002000518 A1	03-01-2002